



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/784,815

02/24/2004

Dietrich Scherzer

54166

1166

26474 7590 11/13/2007  
NOVAK DRUCE DELUCA & QUIGG, LLP  
1300 EYE STREET NW  
SUITE 1000 WEST TOWER  
WASHINGTON, DC 20005

EXAMINER

ZEMEL, IRINA SOPJIA

ART UNIT

PAPER NUMBER

1796

MAIL DATE

DELIVERY MODE

11/13/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	Application No. 10/784,815	Applicant(s) SCHERZER ET AL.	
	Examiner Irina S. Zemel	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 27 August 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1,5,14 and 24-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,5,14,24-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                 | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

Applicant's election of polyether sulfones in the reply filed on 8-27-2007 is acknowledged.

The applicants traverse the election/restriction requirement since as alleged by the applicants, the election of species requirement set forth by the examiner is a clear error. The examiner disagrees. The examiner did state in the restriction requirement that the "claims to the different species recite the mutually exclusive characteristics of such species". The examiner agrees that this is not the case as none of the dependent claims recite individual species. However, the base claim recites individual species with mutually exclusive characteristics. The examiner apologizes for inadvertent use of a wrong form paragraph, which form paragraph should have stated that :

"Claim 1 generic to the following disclosed patentably distinct species: thermoplastic selected from the group consisting of polyether sulfones, polysulfones, polyether ketones, polyether ether ketones, polyether ketone ketones, polyethersulfonamides, and mixtures of these . The species are independent or distinct because as disclosed the different species have mutually exclusive characteristics for each identified species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is finally held to be allowable.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph."

Since the base claim does, in fact, recited individual and patentably distinct species, the election requirement is still proper.

Contrary to applicant allegation, the examiner's statement above that "the species are independent or distinct because as disclosed the different species have mutually exclusive characteristics for each identified species. In addition, these species are not obvious variants of each other based on the current record" is sufficient reason for reason for requiring election of species as per "MPEP 8.02 Requiring an Election of Species; No Species Claim Present". The applicants may traverse this requirement on the grounds that the species are NOT patentably distinct as set forth in the previous office action.

Thus, the restriction requirement is still deemed proper.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 24-41 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent 6045899 to Wang et al., (hereinafter "Wang").

Wang discloses a foam composed of a high-temperature-resistant thermoplastic such polyether sulfone and having an open-cell structure. See the coarse pores surface of the membrane portion, such as per, for example, figures 2b and 2c,

clearly showing foam portions with wherein the open-cell factor for the foam is at least 75%, and wherein the foam has a cell size is well over 100um. Since the polymer used in those foams is the polyether sulfone identical to the claimed polymers, its extrudability properties must be identical to the claimed polymers thus inherently meeting the claimed limitations.

***Claim Rejections - 35 USC § 102/103***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 5, 14, 24-41 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 7,045,082 to Deitzen et al., (hereinafter Deitzen), or under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over EP 1333051 to BASF (document corresponding to US '082 patent).

The references in the rejection are made to the English text of the '082 patent.

Both documents disclose foams obtained from polyether sulfones (high temperature resistant thermoplastics) with the density corresponding to the claimed

density, and obtained under the conditions (processing temperatures, amounts and types of blowing agents) that fully correspond to the conditions under which the claimed foams are obtained in illustrative examples of the instant specification. The reference does not expressly discuss the cell size and the open cell content of the foams, however in view of identical processing conditions disclosed in the reference and in illustrative examples of the instant specification, the claimed parameters are believed to have been inherently met by the foams disclosed in the references. The reference does not expressly address the extrudability of the disclosed thermoplastics or the open cell content of the resulting foams. However, since the thermoplastics disclosed in the reference and the thermoplastics disclosed in the instant specification are identical, it is reasonable believed that the extrudability of the thermoplastics disclosed high temperature resistant thermoplastics.

The burden is shifted to the applicants to provide factual evidence to the contrary.

Claims 1, 5, 14, 24-41 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 5,084,484 to Nintz et al., (hereinafter "Nintz").

Nintz discloses foams composed of high temperature resistant thermoplastics such as polyether sulfones (column 1, line 66), and other thermoplastics, such as PEEK with the density corresponding to the claimed density and cell size corresponding to the claimed cell size. See illustrative examples and column 1, lines 33-34 for examples of PEEK based foams with the properties corresponding to the claimed properties.. The

reference does not expressly address the extrudability of the disclosed thermoplastics or the open cell content of the resulting foams. However, since the thermoplastics disclosed in the reference and the thermoplastics disclosed in the instant specification are identical, it is reasonable believed that the extrudability of the thermoplastics disclosed high temperature resistant thermoplastics. Insofar as the open cell content, as discussed in the previous office action, this characteristic is believed to also be an inherent characteristic of the disclosed foam in view of the processing conditions (such as very high processing temperatures, the amounts of specified blowing agents and the presence of specified amounts of nucleating agent). It is noted that the processing temperatures in all of the illustrative examples are about 35-55 °C higher than the melting temperatures of the corresponding polymers, which is about the same temperature difference in  $T_m$  and the processing temperature as per disclosure on page 7 of the instant specification for 3010 BASF polyether sulfone, the only polymer discussed with such specificity in the instant specification.

The burden is shifted to the applicants to provide factual evidence to the contrary.

Claims 1, 5, 14, 24-41 rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US Patent 5,017,622 to Bland et al., (hereinafter "Bland").

Bland discloses foams composed of high temperature resistant thermoplastics such as polyether sulfones (columns 2-3) with the density corresponding to the claimed density. See illustrative example 1 and table 1. The reference does not expressly

address the extrudability of the disclosed thermoplastics or the open cell content of the resulting foams. However, since the thermoplastics disclosed in the reference and the thermoplastics disclosed in the instant specification are identical, it is reasonable believed that the extrudability of the thermoplastics disclosed high temperature resistant thermoplastics. Insofar as the open cell content, this characteristic is believed to also be an inherent characteristic of the disclosed foam in view of the processing conditions (such as very high processing temperatures, the amounts of specified blowing agents). It is noted that the processing temperatures in all of the illustrative examples are about 35-55 °C higher than the melting temperatures of the corresponding polymers, which is about the same temperature difference between  $T_m$  and the processing temperature as per disclosure on page 7 of the instant specification for 3010 BASF polyether sulfone, the only polymer discussed with such specificity in the instant specification.

The burden is shifted to the applicants to provide factual evidence to the contrary.

### ***Response to Arguments***

Applicant's arguments, with respect to the claim rejections over Mitsubishi and Knaus have been fully considered and are persuasive. Those rejections have been withdrawn.

Applicant's arguments filed 10-17-2006 with respect to the rejections over Nintz reference have been fully considered but they are not persuasive. The applicants argue that the Nintz reference does not give the range of the processing temperatures at



which the foams with the claimed open cell factor are obtained. While the reference does not disclose a range of temperatures, the reference illustrate some embodiments in which the processing temperatures and the amounts of blowing agents appear to correspond to the conditions for obtaining open cell foams as discussed above.

It is noted that the specification of the instant application does not define the temperatures necessary to obtain the claimed open cell content so that it can be clearly apparent for an ordinary artisan either. The specification provides no guidance whatsoever as how to select the processing temperature with respect to the actual properties of the underlying thermoplastic polymer, and the processing temperatures necessary to obtained the claimed open cell content are only disclosed with respect of the temperatures necessary to obtain closed cell foams, which is a relative temperature as the cell structure may vary considerably depending on the blowing agents, their amounts and other additives. The examiner stated why based on the temperatures and blowing agents disclosed in specific examples of Nintz it is reasonable believed that the foams are of open cell structure. The examiner has no facilities to actually conduct the experiments and to obtain the actual results to support her potion. If more information (other than processing temperatures and amounts/types of blowing agents/additives) is required to determine the temperatures necessary to obtain the claimed open cell foams, then the question arises whether the claimed invention is enabled for the entire scope of the claimed invention as the only guidance on the actual processing temperature is given for 3010 BASF polyether sulfone, the only polymer discussed with such specificity in the instant specification. As discussed above, if more that

discussed parameters are needed to determine the processing conditions to obtain the claimed open cell foams are needed, then one of ordinary skill will face undue experimentation to determine those parameters for each of the claimed polymers and for each numerous compositions that include various blowing agents/additives and their respective amounts, and to determine at which temperatures each of the numerous compositions will produce close/open cell foams.

***Information Disclosure Statement***

It is noted that decision on the petition filed on 10-17-2006 has no effect on the status of the IDS which was filed subsequent to the issuance of the first office action on the merits on 2-2-2006 and lacked either the required certification or fees. Thus the 5-5-2006 IDS has not been considered.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Irina S. Zemel whose telephone number is (571)272-0577. The examiner can normally be reached on Monday-Friday 9-5.

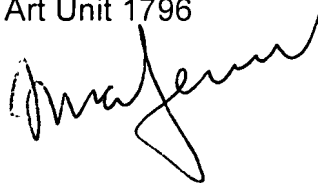
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Seidleck can be reached on (571)272-1078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Application/Control Number:  
10/784,815  
Art Unit: 1796

Page 10

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Irina S. Zemel  
Primary Examiner  
Art Unit 1796



ISZ